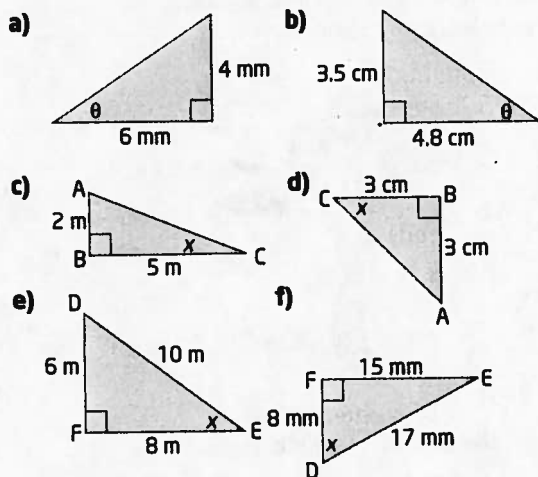


Practise

For help with questions 1 and 2, see Example 1.

1. Find the tangent of the angle indicated, to four decimal places.



2. Refer to question 1. Find the tangent of the other acute angle, to four decimal places.

For help with question 3, see Example 2.

3. Evaluate with a calculator. Record your answer to four decimal places.

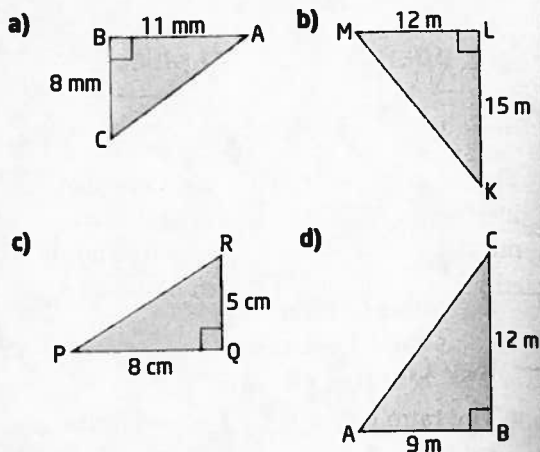
- a) $\tan 65^\circ$ b) $\tan 15^\circ$
 c) $\tan 62^\circ$ d) $\tan 5^\circ$
 e) $\tan 30.7^\circ$ f) $\tan 82.4^\circ$
 g) $\tan 20.5^\circ$ h) $\tan 45^\circ$

For help with questions 4 to 8, see Example 3.

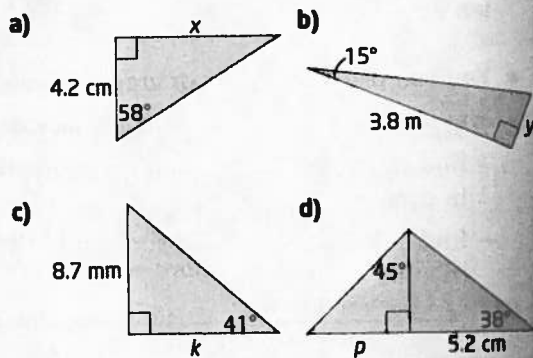
4. Find the measure of each angle, to the nearest degree.

- a) $\tan \theta = 1.5$ b) $\tan A = \frac{3}{4}$
 c) $\tan B = 0.6000$ d) $\tan W = \frac{4}{5}$
 e) $\tan C = 0.8333$ f) $\tan \theta = \frac{6}{7}$
 g) $\tan X = 3.0250$ h) $\tan \theta = \frac{15}{9}$

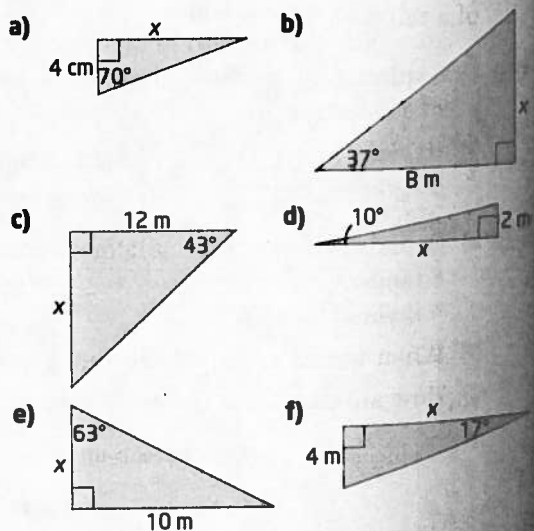
5. Find the measures of both acute angles in each triangle, to the nearest degree.



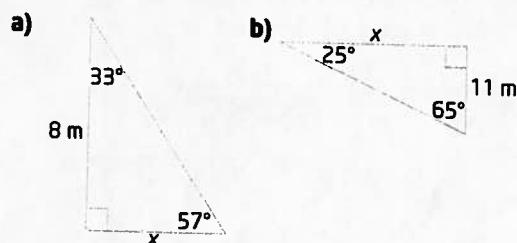
6. Find the length of the unknown side, to the nearest tenth.



7. Find the length of x, to the nearest tenth of a metre.

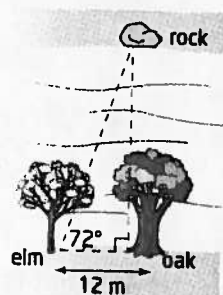


8. Find the length of x , to the nearest tenth of a metre.



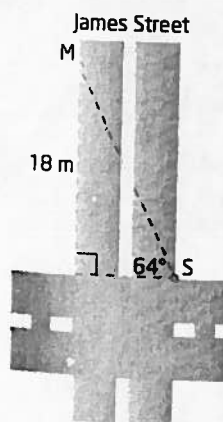
Connect and Apply

9. To measure the width of a river, Kirstyn uses a large rock, an oak tree, and an elm tree, which are positioned as shown.

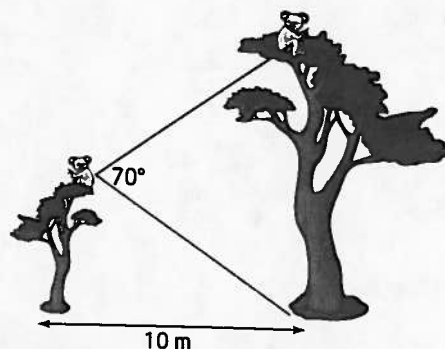


Show how Kirstyn can use the tangent ratio to find the width of the river, to the nearest metre.

10. A surveyor is positioned at a traffic intersection, viewing a marker on the other side of the street. The marker is 18 m from the intersection. The surveyor cannot measure the width directly because there is too much traffic. Find the width of James Street, to the nearest tenth of a metre.



11. Rocco and Biff are two koalas sitting at the top of two eucalyptus trees, which are located 10 m apart, as shown. Rocco's tree is exactly half as tall as Biff's tree. From Rocco's point of view, the angle separating Biff and the base of his tree is 70° .

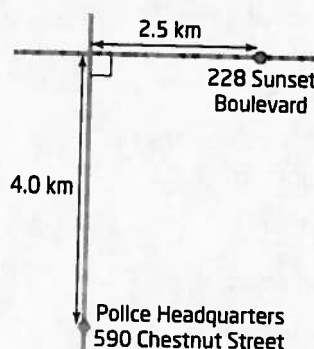


How high off the ground is each koala?

12. Police are responding to a distress call:

Help needed at 228 Sunset Boulevard immediately.

Police headquarters and the trouble site are shown.



Squad cars and a helicopter are both immediately dispatched to the site from headquarters.

- At what angle to Chestnut Street should the helicopter travel?
- Assuming that the squad cars can travel at an average speed of 60 km/h and the helicopter can travel twice as fast, how much longer will it take for the squad cars to reach the site than the helicopter?
- Describe any assumptions you make in your solutions.